# Foreword

National Oceanic and Atmospheric Administration

U.S. DEPARTMENT OF COMMERCE

## NOAA Fisheries Service
## Northeast Cooperative Research Partners Program

The National Marine Fisheries Service (NOAA Fisheries Service), Northeast Cooperative Research Partners Program (NCRPP) was initiated in 1999. The goals of this program are to enhance the data upon which fishery management decisions are made as well as to improve communication and collaboration among commercial fishery participants, scientists and fishery managers. NOAA Fisheries Service works in close collaboration with the New England Fishery Management Council's Research Steering Committee to set research priorities to meet management information needs.

Fishery management is, by nature, a multiple year endeavor which requires a time series of fishery dependent and independent information. Additionally, there are needs for immediate short-term biological, oceanographic, social, economic and habitat information to help resolve fishery management issues. Thus, the program established two avenues to pursue cooperative research through longer and short-term projects. First, short-term research projects are funded annually through competitive contracts. Second, three longer-term collaborative research projects were developed. These projects include: 1) a pilot study fleet (fishery dependent data); 2) a pilot industry based survey (fishery independent data); and 3) groundfish tagging (stock structure, movements and mixing, and biological data).

> First, a number of short-term research projects have been developed to work primarily on commercial fishing gear modifications, improve selectivity of catch on directed species, reduce bycatch, and study habitat reactions to mobile and fixed fishing gear.
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> Second, two cooperative research fleets have been established to collect detailed fishery dependent and independent information from commercial fishing vessels. The original concept, developed by the Canadians, referred to these as "sentinel fleets". In the New England groundfish setting it is more appropriate to consider two industry research fleets. A pilot industry-based survey fleet (fishery independent) and a pilot commercial study fleet (fishery dependent) have been developed.
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> Additionally, extensive tagging programs are being conducted on a number of groundfish species to collect information on migrations and movements of fish, identify localized or subregional stocks, and collect biological and demographic information on these species.

For further information on the Cooperative Research Partners Programs please contact:

National Marine Fisheries Service (NOAA Fisheries Service)
Northeast Cooperative Research Partners Program

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www.nero.noaa.gov/StateFedOff/coopresearch/

**EXECUTIVE SUMMARY:**

Working in cooperation with six shrimp vessels and the Maine Department of Marine Resources, the Gulf of Maine Aquarium has completed a collaborative research project titled ***Testing Bycatch in an Observer-based Experimental Shrimp Fishery Conducted in an Area of Higher Groundfish Concentration***.

The goal of the Experimental Shrimp Fishery research project was to determine whether a shrimp fishery could be conducted southeast of the Loran 25600 line within acceptable bycatch limits in order to provide additional economic opportunity to the shrimp fleet and alleviate pressure on shrimp in inshore waters.

During May 2001, six commercial shrimp vessels completed two trips each of three days duration (except for one vessel trip curtailed by equipment failure) in waters southeast of the Loran 25600 line in the vicinity of Cashes Ledge (west to 69º40'W, east to 68º30'W, south to 42º30'N). The vessels completed a total of 130 commercial tows (average length of approximately 2 hours) with a 1" Nordmore grate and 24 control tows (average length of approximately 30 minutes) without the grate. Key findings were as follows:

| Data Summary: | Tows with Grate | Control Tows without Grate |
|---|---|---|
| Total Catch (lbs.) | 78,776.3 | 16,395.1 |
| Total Whiting Catch (lbs.) | 71,904.8 | 6,650.2 |
| Total Shrimp Catch (lbs.) | 1,943.8 | 64.7 |
| Total Regulated Species Catch (lbs.) | 1,407.2 | 5,432.2 |
| Total Bycatch Regulated Species | 1.8% | 33.1% |
| Number of Tows (n) | 130 | 24 |
| | | |
| Average Total Catch per Tow (lbs.) | 605.9 | 683.1 |
| Average Shrimp Catch per Tow (lbs.) | 15.0 | 2.7 |
| Average Regulated Species Catch per Tow (lbs.) | 10.8 | 226.3 |
| Average Bycatch per Tow | 2.9% | 32.2% |
| Standard Deviation Average Bycatch per Tow | 3.5% | 26.6% |
| Relative Standard Error (RSE = SE/Mean) | 10.9% | 16.8% |
| Median Bycatch per Tow | 1.6% | 21.1% |
| | | |
| Average Total CPUE per Tow (lbs./hr.) | 295.8 | 1,748.4 |
| Average Shrimp CPUE per Tow (lbs./hr.) | 7.2 | 5.4 |
| Average Regulated Species CPUE per Tow (lbs./hr.) | 5.1 | 701.1 |

The mean % bycatch of regulated species in tows using the Nordmore grate, 2.9% +/- 3.5%, was significantly ($t = 6.664$, $P(\text{Mean } X = 5\% << 0.001)$ below the 5% threshold for regulated species, despite the minimal catches of shrimp. The comparative bycatch and

CPUE data from Nordmore grate tows vs. control tows without the grate indicate that the Nordmore grate was effective at minimizing bycatch of regulated species present.

The low catch of shrimp was disappointing, but does not invalidate the fact that fishing the net with the Nordmore grate outside the 25600 line produces very low bycatch of regulated species, which is the aim of the conservation effort for groundfish. The low shrimp catch was the result of the small 1998 year class of male shrimp (smallest on record since the 1983 inception of the summer ASMFC Shrimp Survey) and a delayed offshore migration of female shrimp. In a "normal" year for the May shrimp fishery, Maine Department of Marine Resources port sampling records indicate that shrimp catch per unit effort in that area would be closer to 180 lbs./hr (range 49 – 333 lbs./hr).